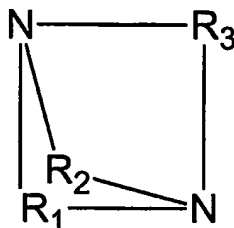


**WHAT IS CLAIMED IS:**

1. A composition useful for reducing the concentration of mercaptans in hydrocarbons comprising:

- 5 (A) a first component having the general formula:



wherein: (i)  $R_1$ ,  $R_2$ , and  $R_3$  are independently saturated or unsaturated alkyl groups, and (ii) at least two of  $R_1$ ,  $R_2$ , and  $R_3$  include a chain of at least two carbon atoms

- 10 bonded to the two N atoms; and

(B) a second component comprising a nucleophilic acceptor.

2. The composition of Claim 1 wherein the first component is selected from the group consisting of: 1,4-diazabicyclo(2.2.2)octane; 1,8-diazabicyclo(5.4.0)undec-7-ene; 1,5-diazabicyclo(4.3.0)non-5-ene; and mixtures thereof.

3. The composition of Claim 2 wherein the first component is 1,4-diazabicyclo(2.2.2)octane

- 20 4. The composition of Claim 1 wherein the second component comprising a nucleophilic acceptor is selected from the group consisting of: isocyanates, isothiocyanates, activated esters, acid chlorides, sulfonyl chlorides, activated sulfonamides, activated heterocycles, activated heteroaryls, chloroformates, cyanoformates, thioesters, phosphoryl chlorides, phosphoramidates, epoxides, aromatic halides, alkyl halides, imidates, and lactones and mixtures thereof.

5. The composition of Claim 4 wherein the second component comprising a nucleophilic acceptor is selected from the group consisting of: epoxides, aromatic halides, alkyl halides, and mixtures thereof.
- 5 6. The composition of Claim 5 wherein the second component comprising a nucleophilic acceptor is an epoxide.
7. The composition of Claim 6 wherein the second component comprising a nucleophilic acceptor is 1,2-epoxyhexadecane.
- 10 8. The composition of Claim 1 wherein component (A) and component (B) are in a molar ratio of from about 1:99 to about 99:1.
9. The composition of Claim 8 wherein component (A) and component (B) are in a molar ratio of from about 1:1 to about 1:10.
- 15 10. The composition of Claim 9 wherein component (A) and component (B) are in a molar ratio of about 1:5.
- 20 11. The composition of Claim 1 additionally comprising a solvent.
12. The composition of Claim 11 wherein the solvent is an aromatic solvent.
13. The composition of Claim 11 wherein the solvent is an aromatic solvent is xylene.
- 25 14. The composition of Claim 11 additionally comprising an alcohol.
15. The composition of Claim 14 wherein the alcohol is dipropylene glycol.
- 30 16. A method of reducing the concentration of mercaptans in a hydrocarbon comprising admixing a composition of Claim 1 with a hydrocarbon having a first

concentration of mercaptans greater than 0 under reaction conditions sufficient to produce a hydrocarbon having a second concentration of mercaptans that is less than the first concentration of mercaptans.

5 17. The method of Claim 16 wherein the composition of Claim 1 is present at a concentration of from about 10 to about 1000 parts per million (ppm).

18. The method of Claim 17 wherein the composition of Claim 1 is present at a concentration of from about 100 to about 900ppm.

10

19. The method of Claim 17 wherein the composition of Claim 1 is present at a concentration of from about 100 to about 200ppm.

20. The method of Claim 16 wherein the composition of Claim 1 is admixed with  
15 the hydrocarbon using an in-line mixer.

21. The method of Claim 16 wherein the composition of Claim 1 is admixed during shipping.

20 22. The method of Claim 16 additionally comprising the steps of determining the hydrogen sulfide content of the hydrocarbon and using a hydrogen sulfide scavenger to reduce the level of hydrogen sulfide before admixing the hydrocarbon with the composition of Claim 1.

25 23. A hydrocarbon having a reduced concentration of mercaptans comprising a the product of admixing a composition of Claim 1 with a hydrocarbon having a first concentration of mercaptans greater than 0 under reaction conditions sufficient to produce a hydrocarbon having a second concentration of mercaptans that is less than the first concentration of mercaptans.

30

24. The hydrocarbon of Claim 23 wherein the hydrocarbon is a fuel oil.
25. The hydrocarbon of Claim 24 wherein the hydrocarbon is a residual fuel oil.